

FIG. 1

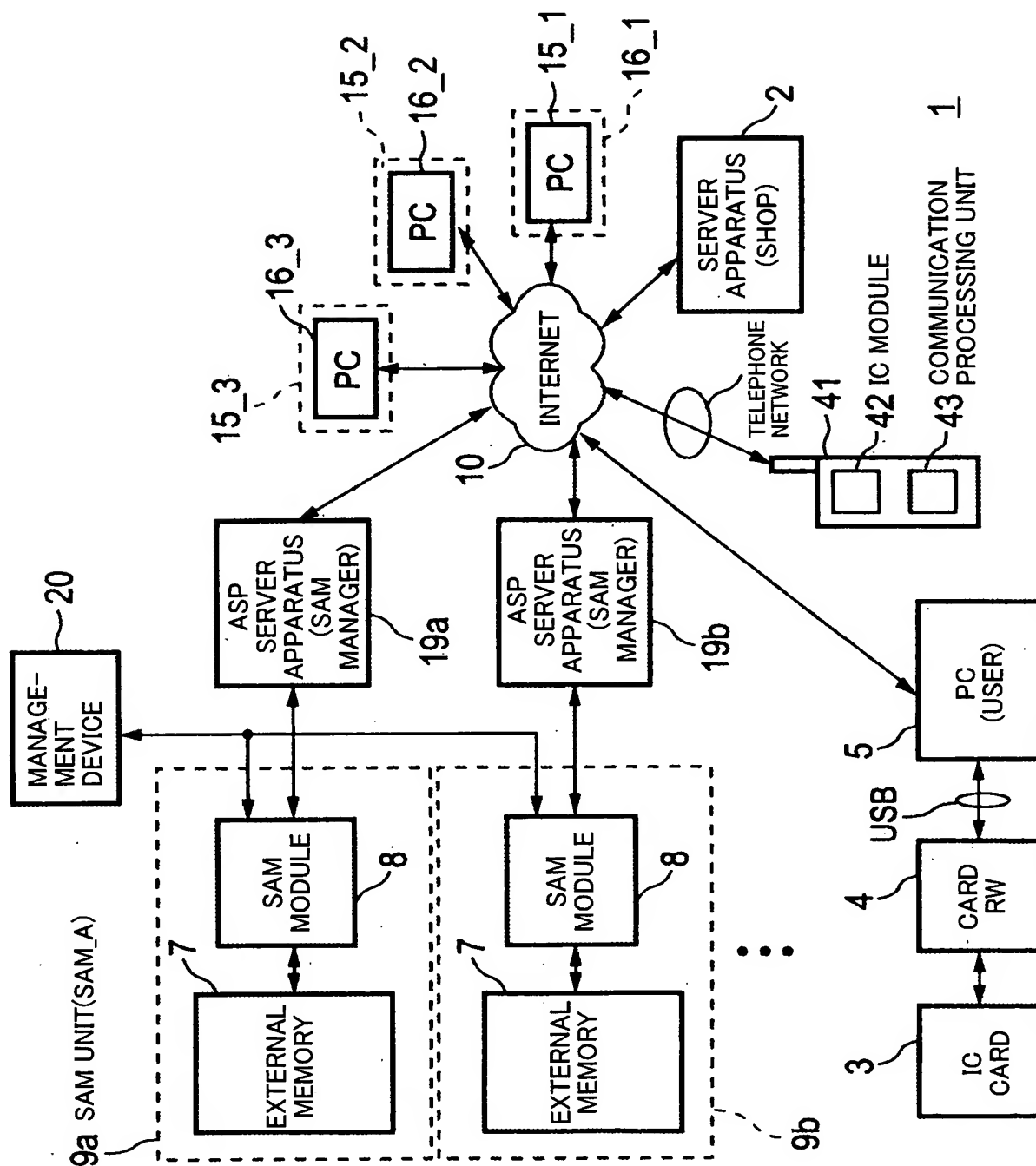


FIG. 2

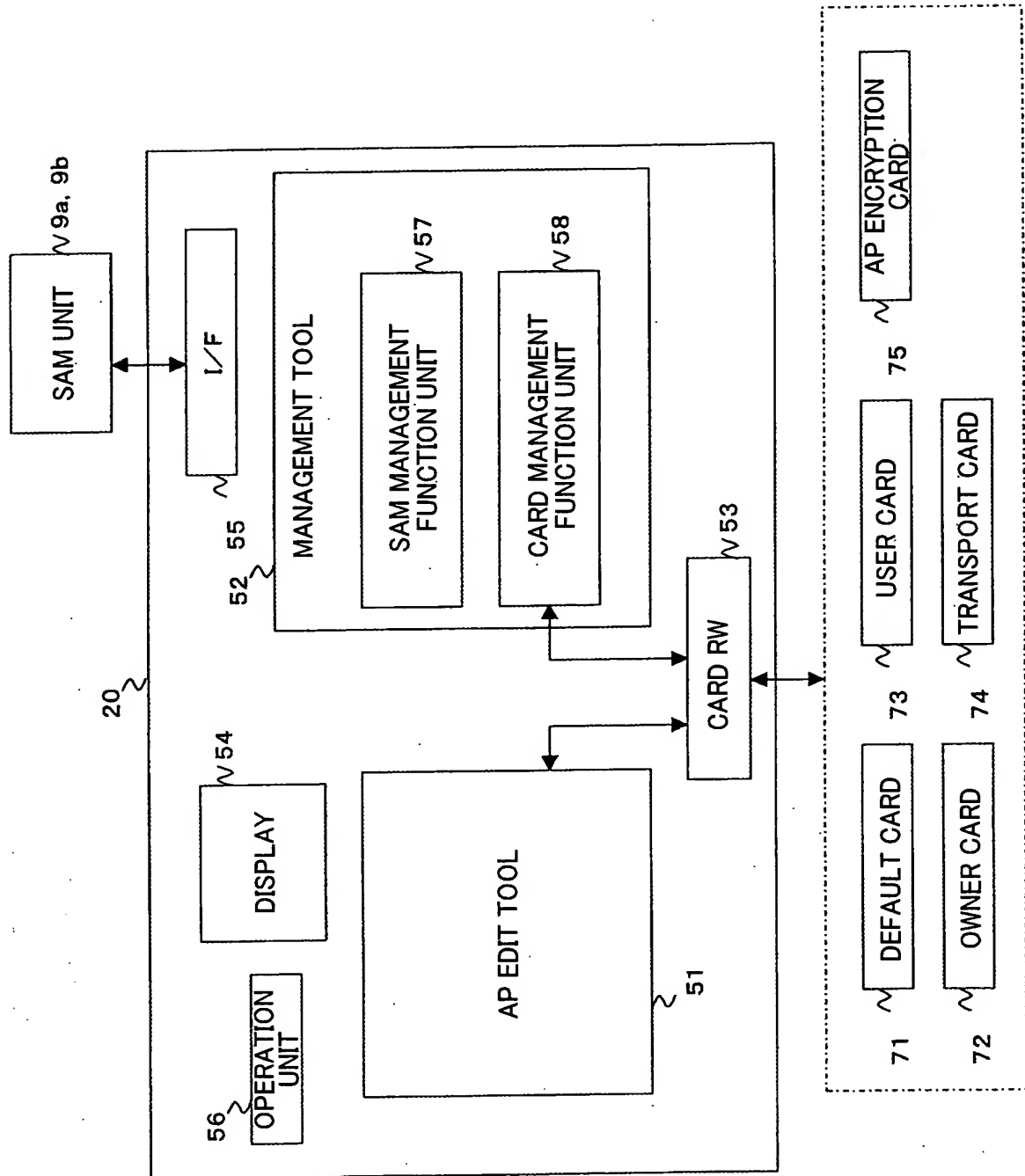


FIG. 3

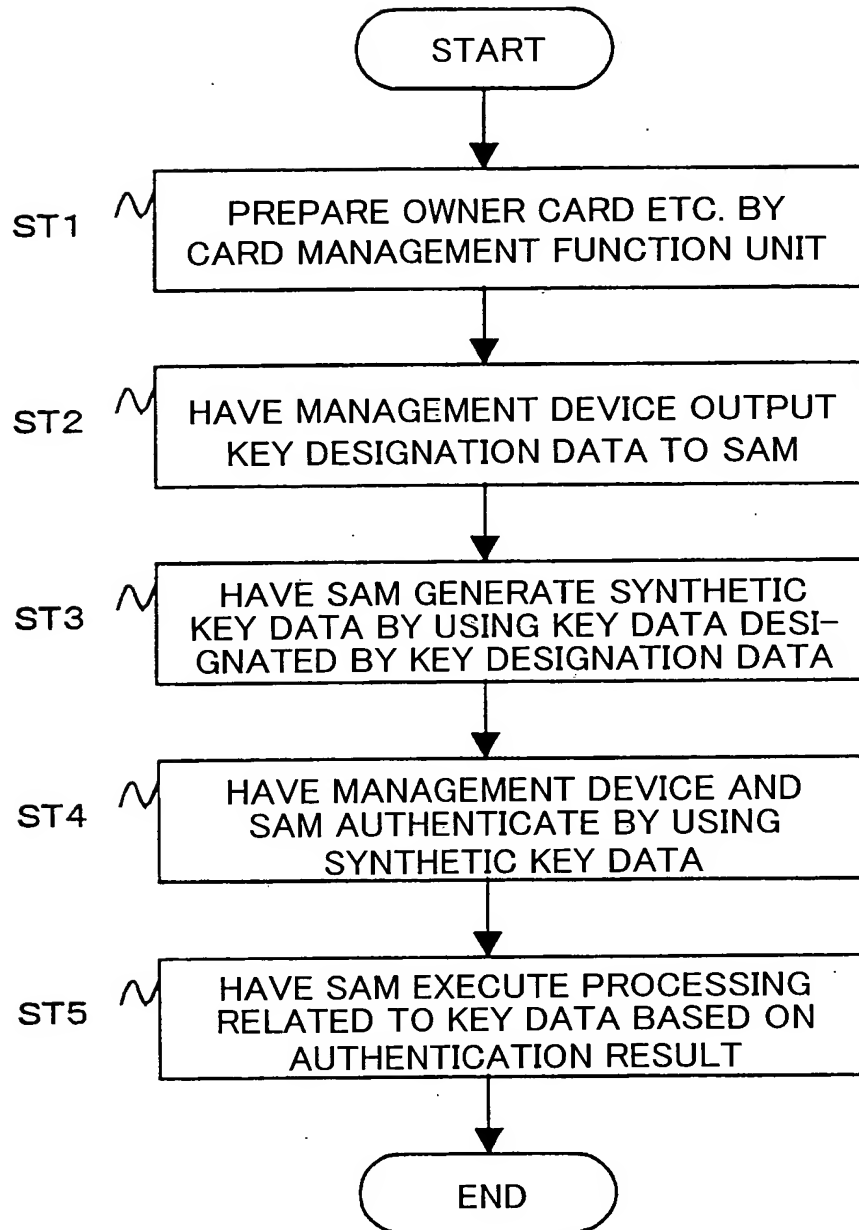


FIG. 4

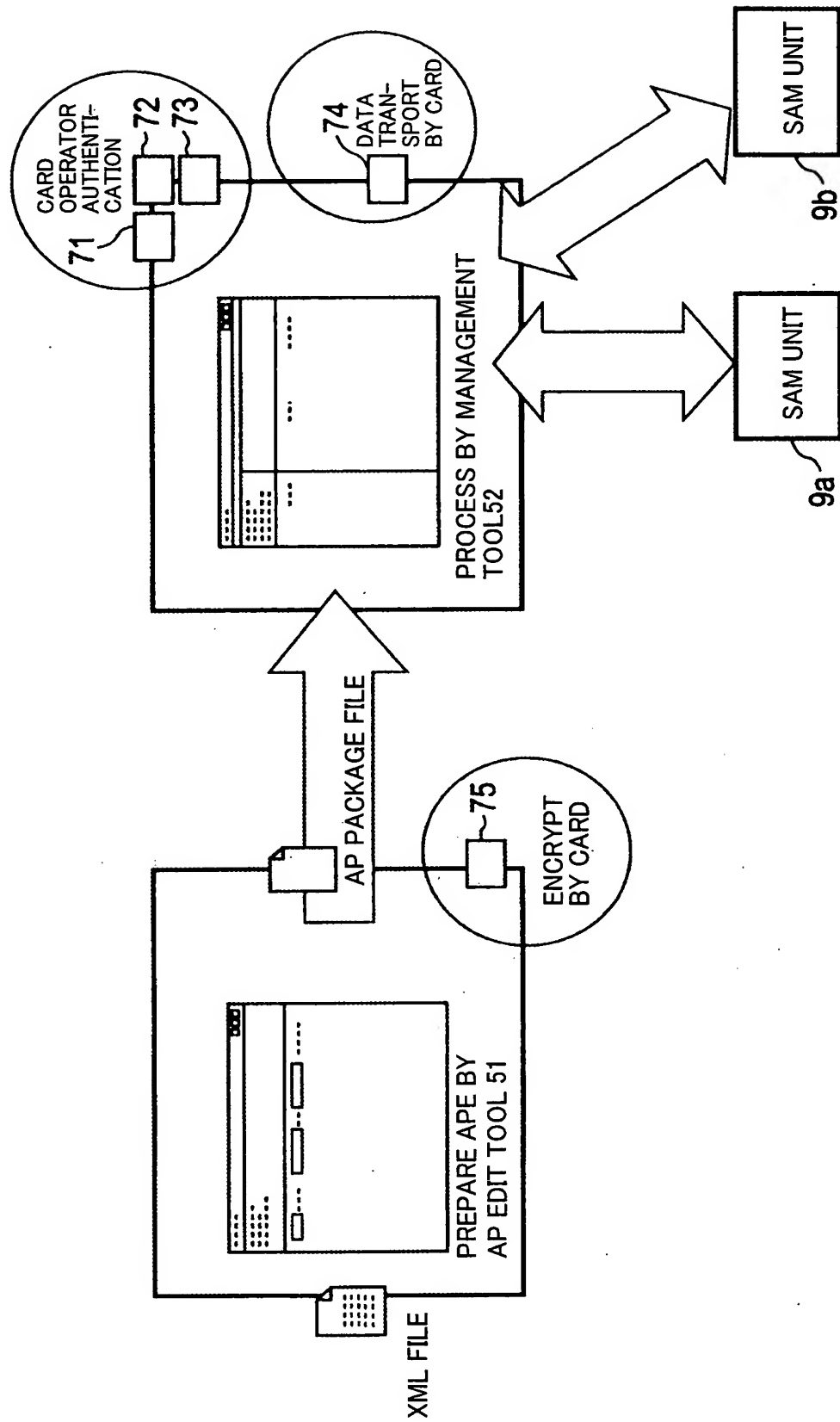


FIG. 5

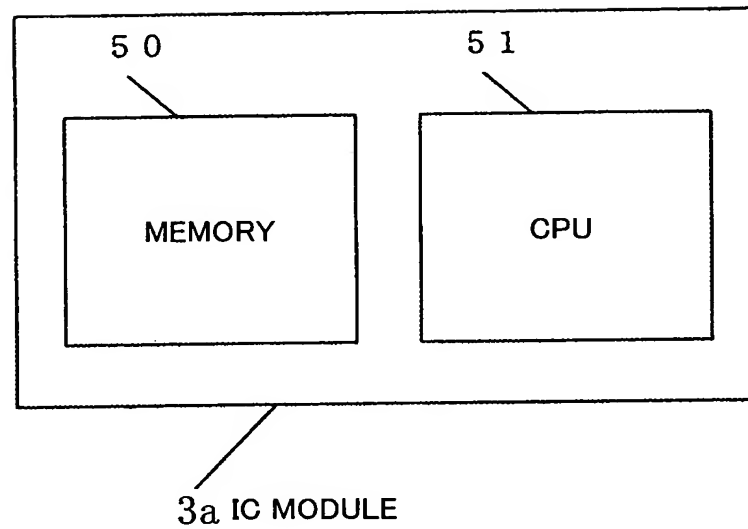


FIG. 6

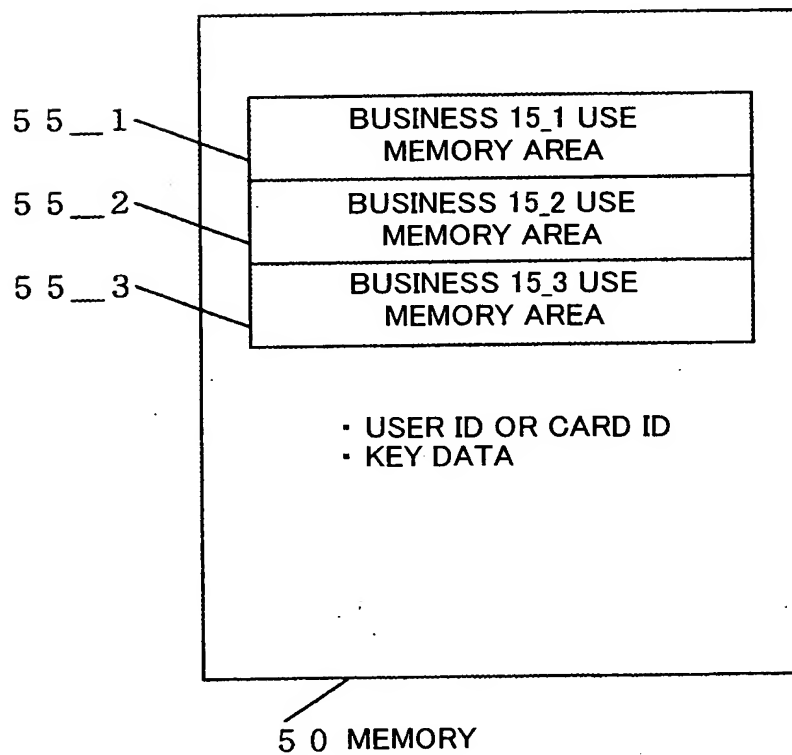


FIG. 7

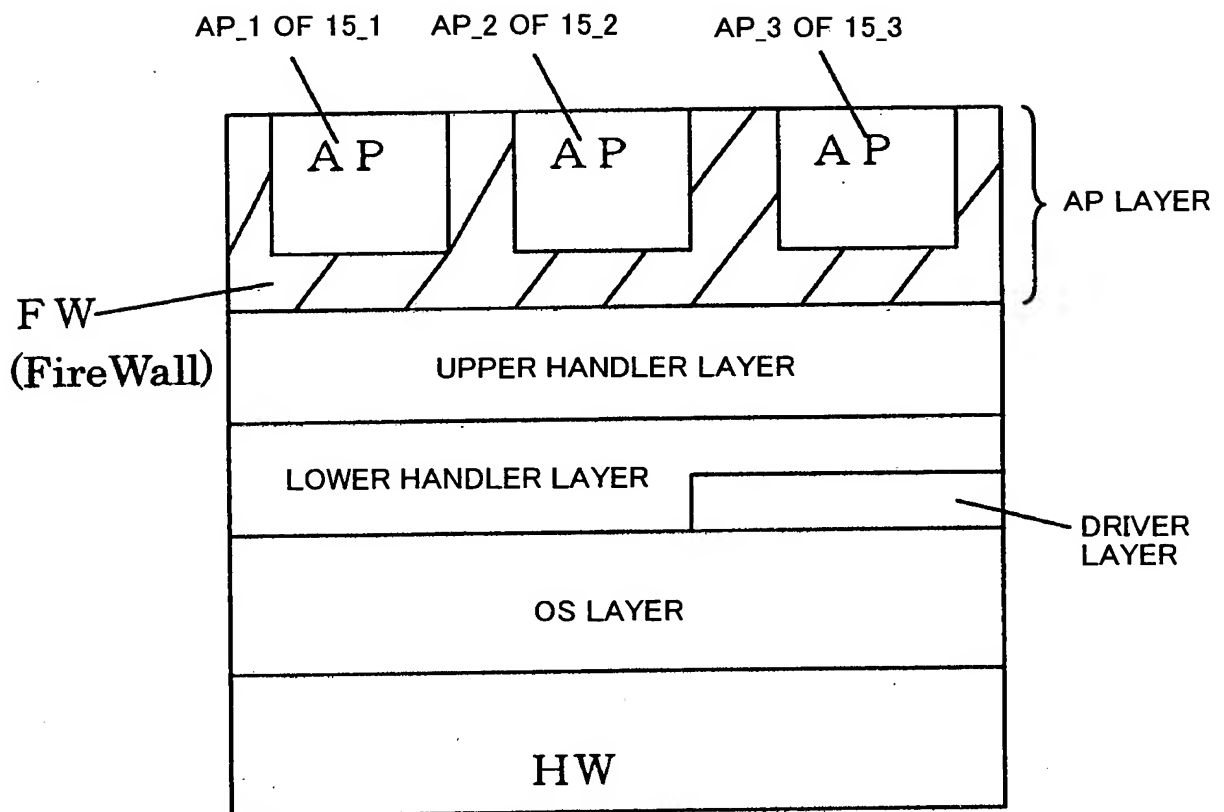


FIG. 8

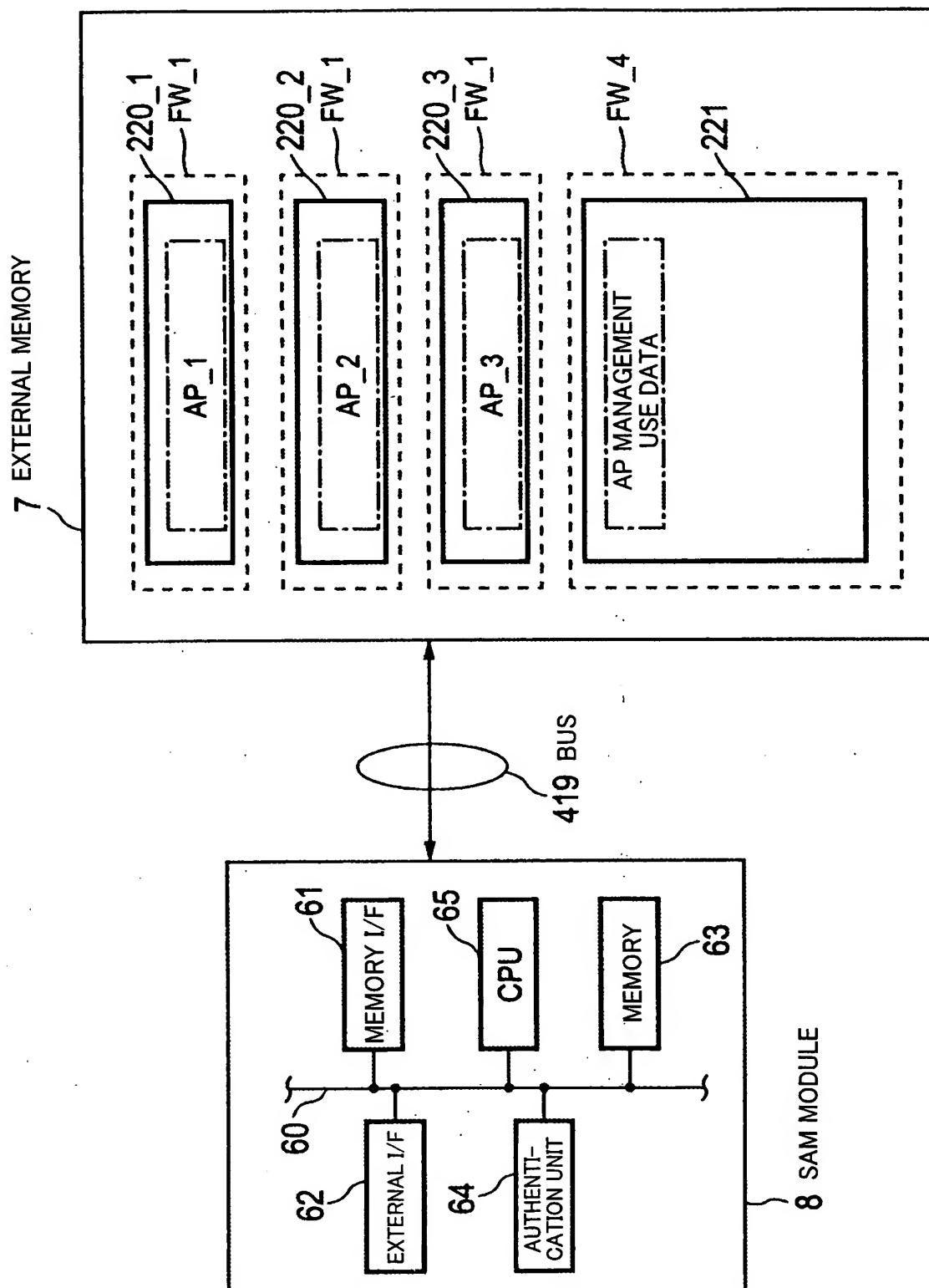


FIG. 9

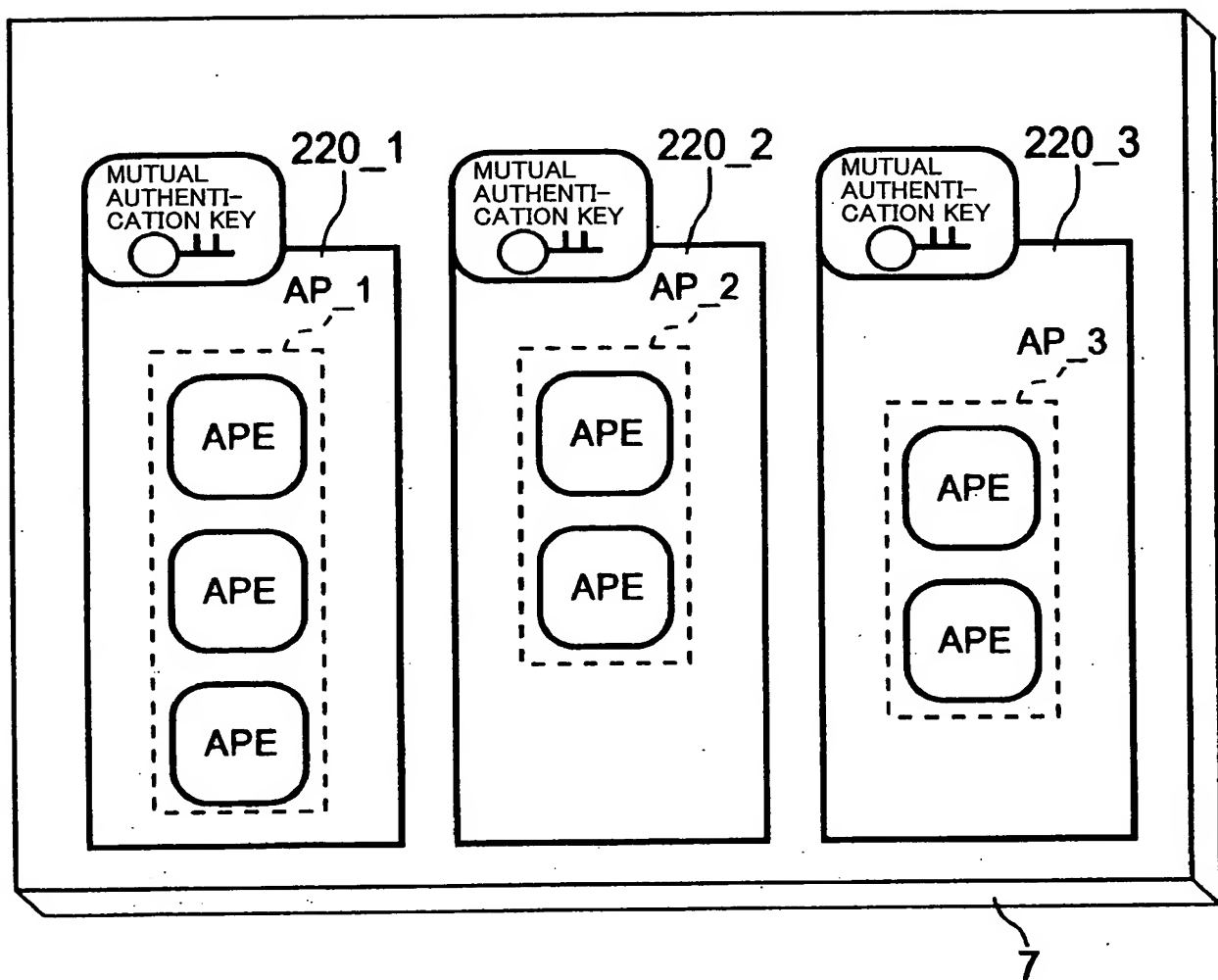




FIG. 10

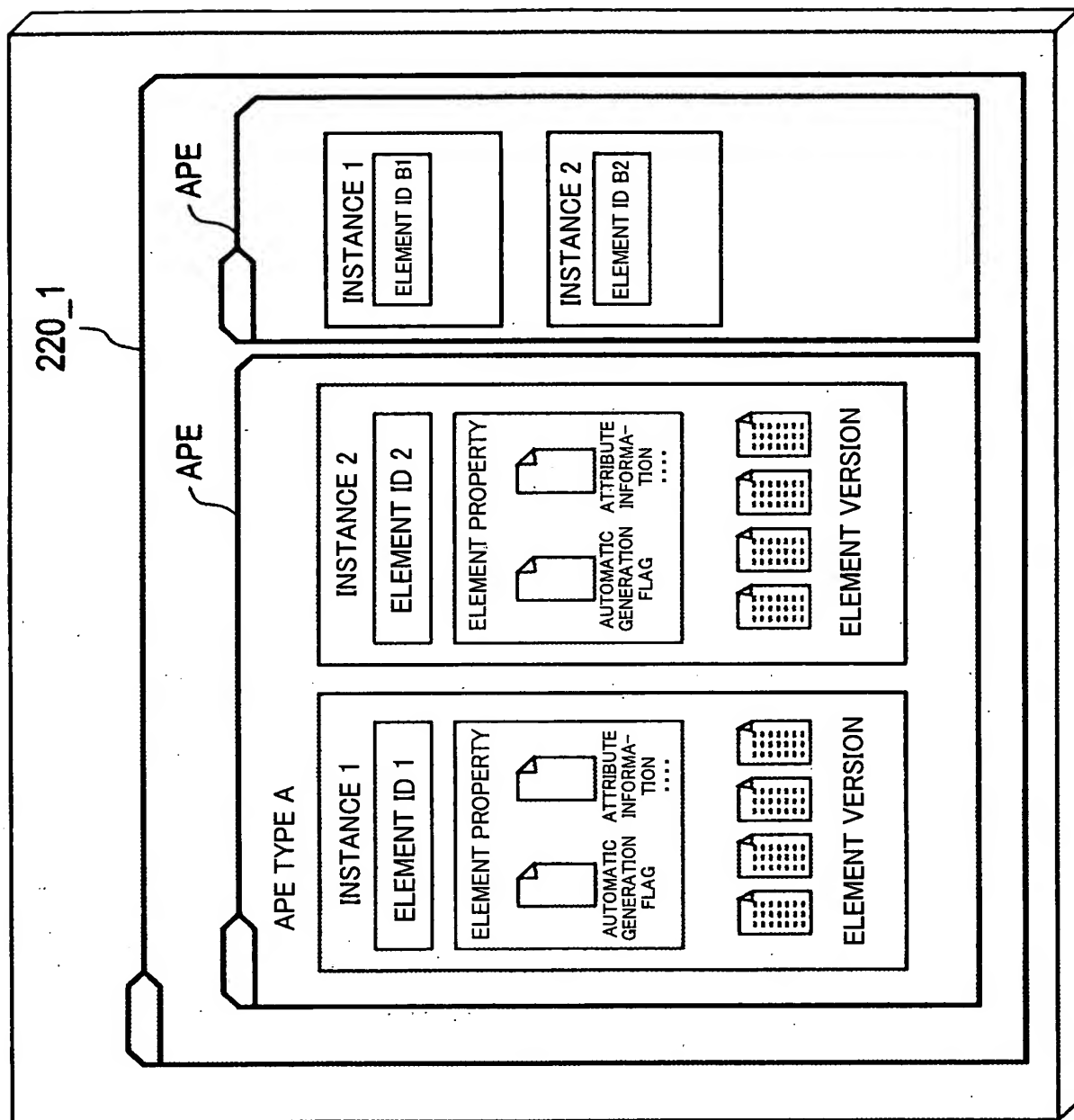


FIG. 11

APE TYPE NUMBER	APE TYPE
...	IC SYSTEM KEY
...	IC AREA KEY
...	IC SERVICE KEY
...	IC SYNTHETIC KEY
...	IC KEY CHANGE PACKAGE
...	IC ISSUANCE KEY PACKAGE
...	IC EXPANSION ISSUANCE KEY PACKAGE
...	IC AREA REGISTRATION KEY PACKAGE
...	IC AREA DELETION KEY PACKAGE
...	IC SERVICE REGISTRATION KEY PACKAGE
...	IC SERVICE DELETION KEY PACKAGE
...	IC MEMORY DIVISION KEY PACKAGE
...	IC MEMORY DIVISION ELEMENT KEY PACKAGE
...	OBSTACLE RECORDING FILE
...	MUTUAL AUTHENTICATION USE KEY
...	PACKAGE KEY
...	NEGATIVE LIST
...	SERVICE DATA TEMPORARY FILE

FIG. 12

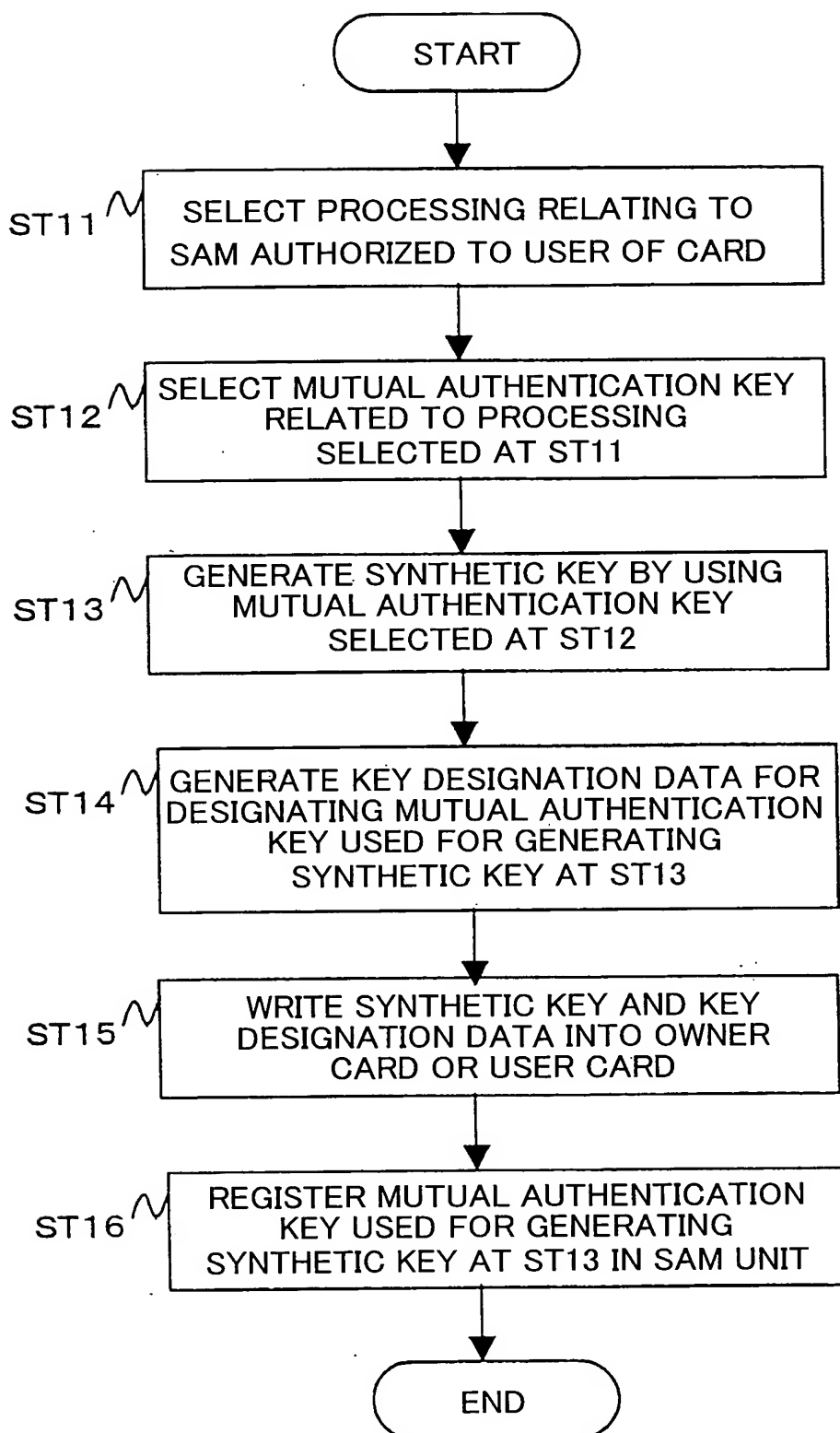


FIG. 13

MUTUAL AUTHENTICATION KEY NAME	AP MEMORY AREA -ID	APE TYPE NUMBER	INSTANCE NUMBER	ELEMENT VERSION
DEVICE KEY	...	...	...	...
TERMINATION KEY	...	...	...	...
MANUFACTURER SETTING SERVICE MUTUAL AUTHENTICATION KEY	...	...	...	...
HARDWARE MANAGEMENT SERVICE MUTUAL AUTHENTICATION KEY	...	...	...	...
COMMUNICATION MANAGEMENT SERVICE MUTUAL AUTHENTICATION KEY	...	...	...	...
MUTUAL AUTHENTICATION SERVICE MUTUAL AUTHENTICATION KEY	...	...	...	...
AP MEMORY AREA MANAGEMENT SERVICE MUTUAL AUTHENTICATION KEY	...	...	...	...
SERVICE AP MEMORY AREA MUTUAL AUTHENTICATION KEY	...	...	...	...
SYSTEM AP MEMORY AREA MUTUAL AUTHENTICATION KEY	...	...	...	...
MANUFACTURER AP MEMORY AREA MUTUAL AUTHENTICATION KEY	...	...	...	...

FIG. 14

AP MEMORY AREA ID	ELEMENT TYPE NUMBER	ELEMENT INSTANCE NUMBER	ELEMENT VERSION NUMBER
2 BYTES	2 BYTES	2 BYTES	2 BYTES
AP RESOURCE AREA TO WHICH IT BELONGS	MUTUAL AUTHENTICATION KEY (FIXED VALUE)	ID OF RELEASE KEY RING	VERSION NUMBER OF USED KEY

MUTUAL AUTHENTICATION KEY NAME	AP MEMORY AREA-ID	APE TYPE NUMBER	INSTANCE NUMBER	ELEMENT VERSION
DEVICE KEY	...	...	...	...
HARDWARE MANAGEMENT SERVICE MUTUAL AUTHENTICATION KEY	...	...	...	...
COMMUNICATION MANAGEMENT SERVICE MUTUAL AUTHENTICATION KEY	...	...	...	...
AP MEMORY AREA MANAGEMENT SERVICE MUTUAL AUTHENTICATION KEY	...	...	...	...
SERVICE AP MEMORY AREA AP-R MUTUAL AUTHENTICATION KEY	...	...	...	...
TERMINATION KEY	...	...	...	...

FIG. 15A

• COMMAND WHICH CAN BE EXECUTED

SERVICE TYPE	COMMAND NAME
HARDWARE MANAGEMENT SERVICE	...
COMMUNICATION MANAGEMENT SERVICE	...
IC SERVICE	...
MUTUAL AUTHENTICATION SERVICE	...
AP MEMORY AREA MANAGEMENT SERVICE	...

FIG. 15B

FIG. 16

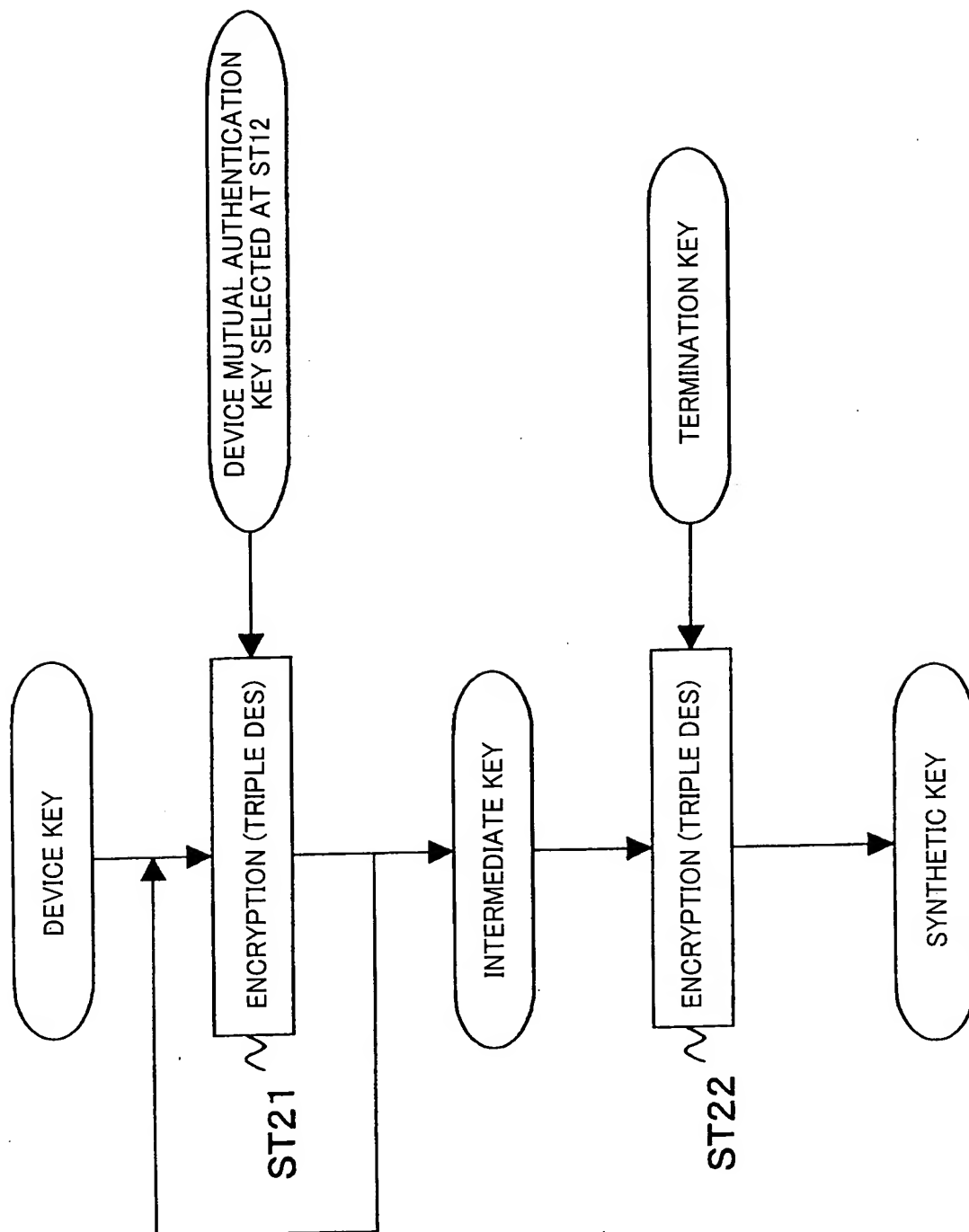


FIG. 17

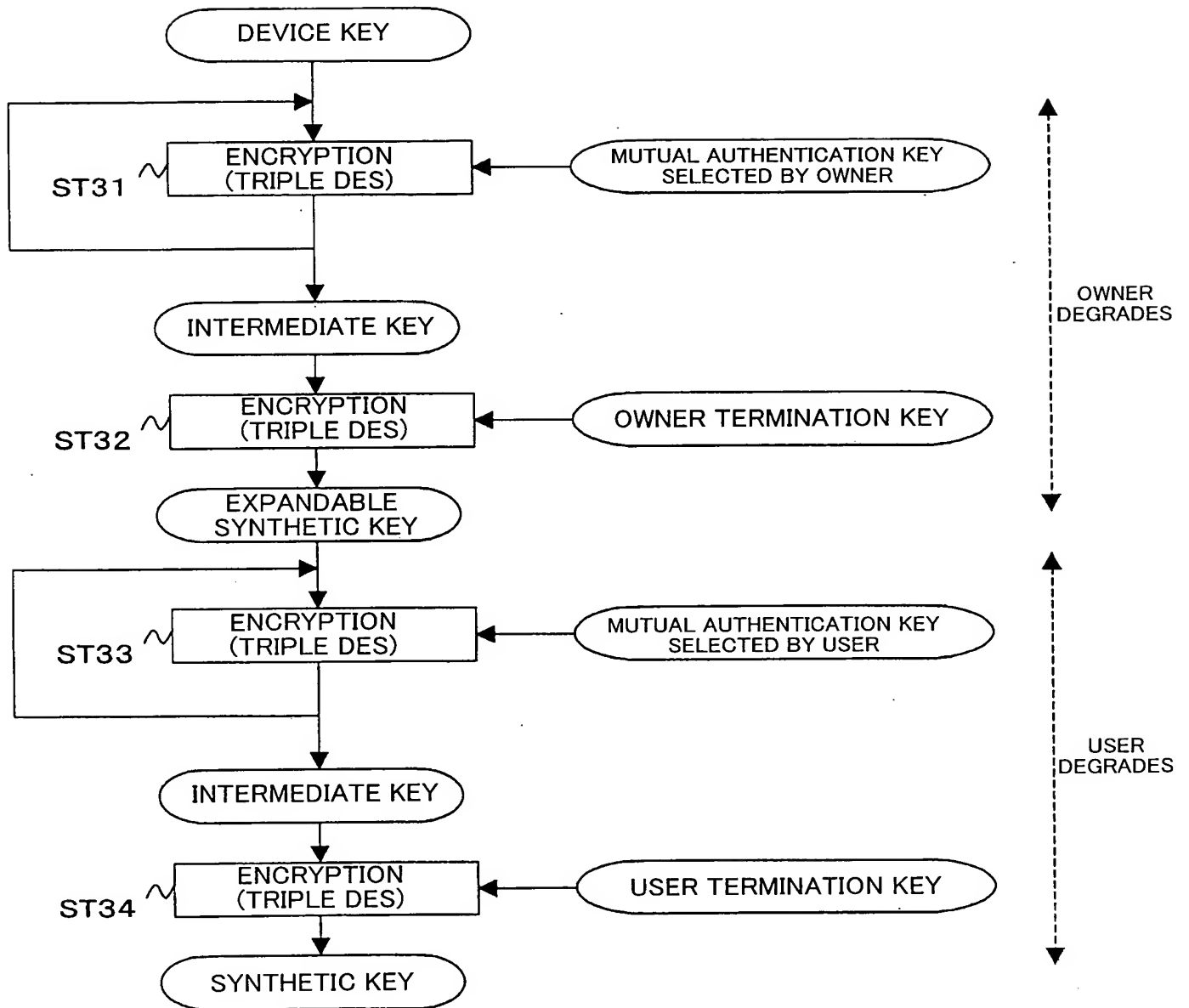




FIG. 18

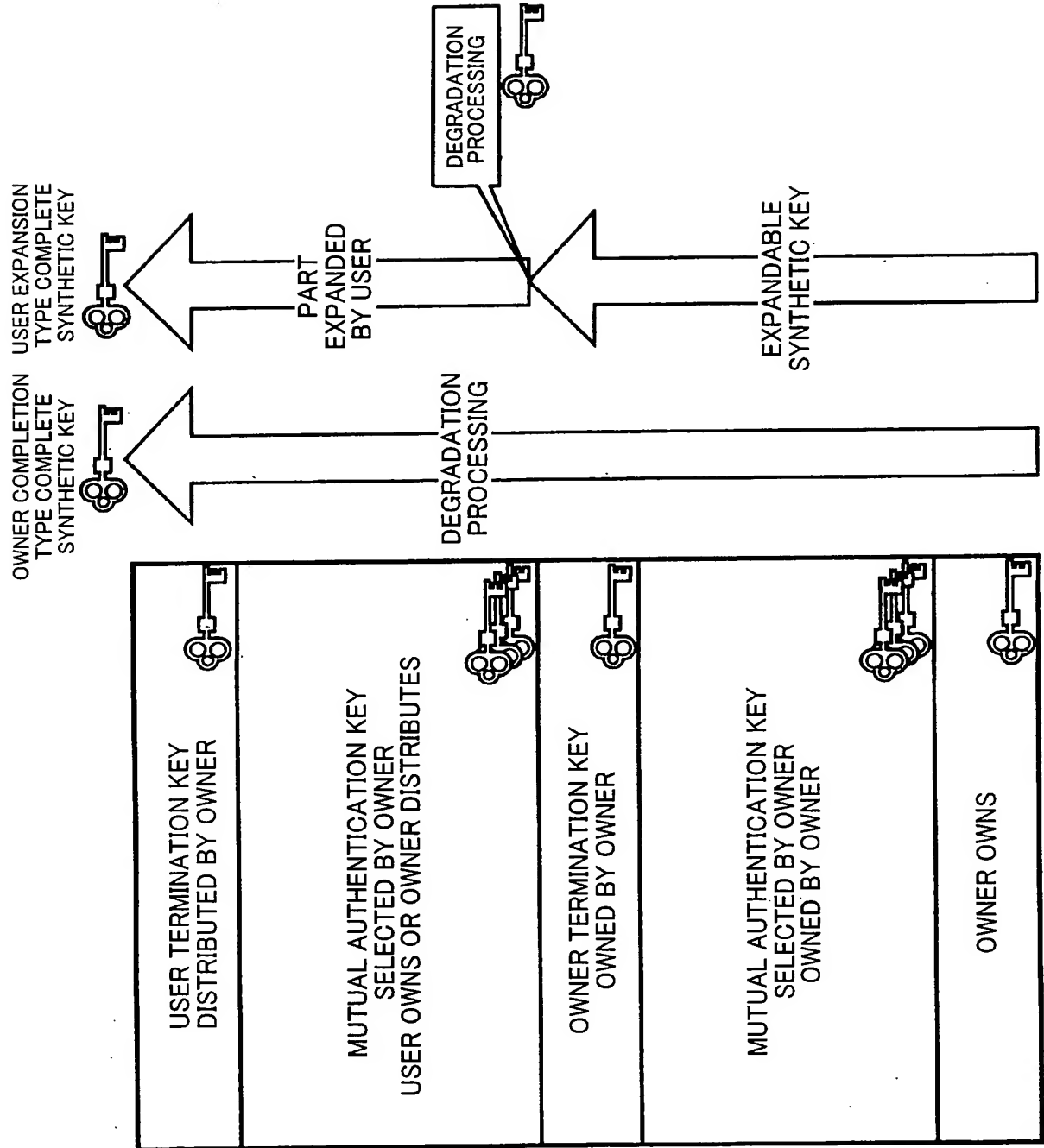


FIG. 19

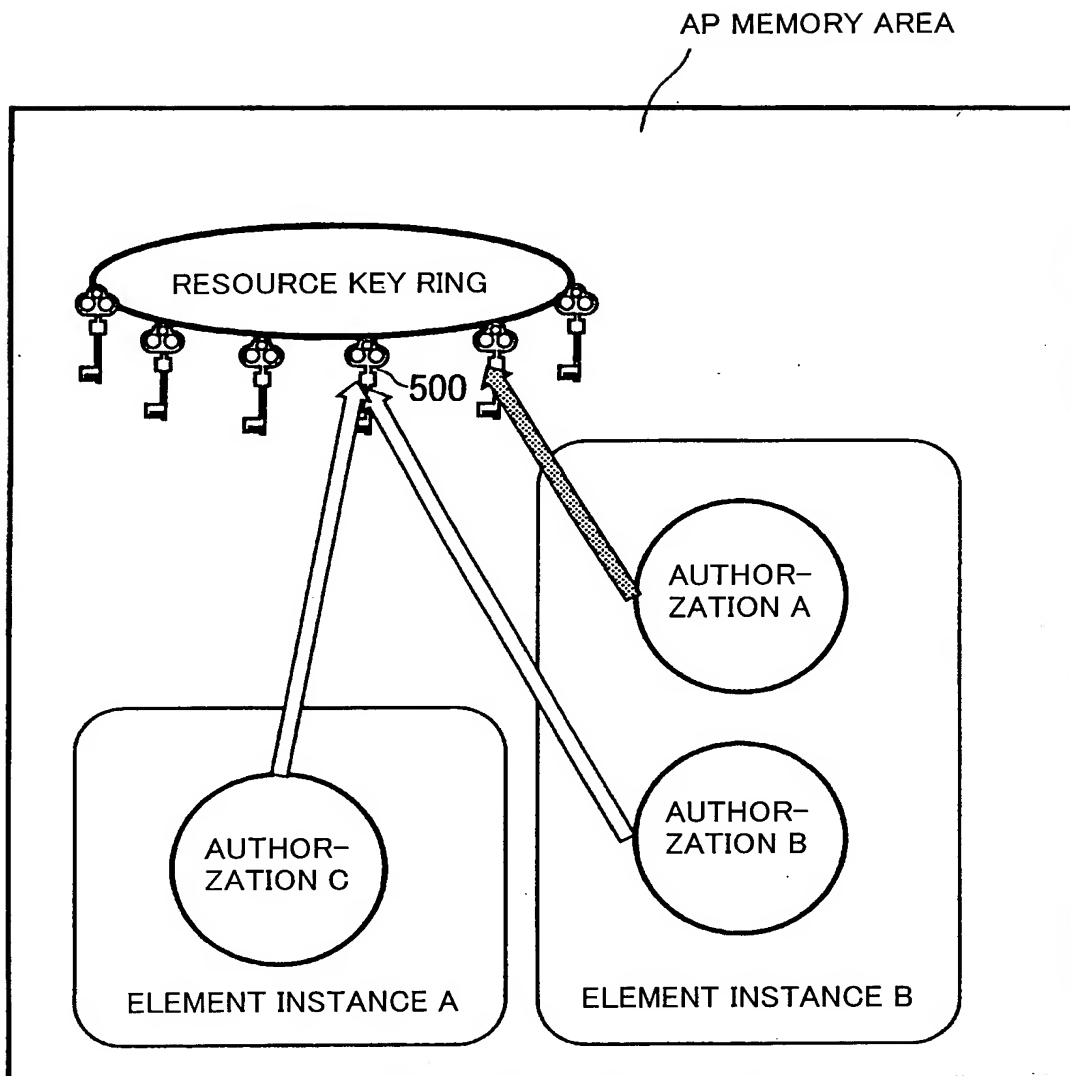


FIG. 20

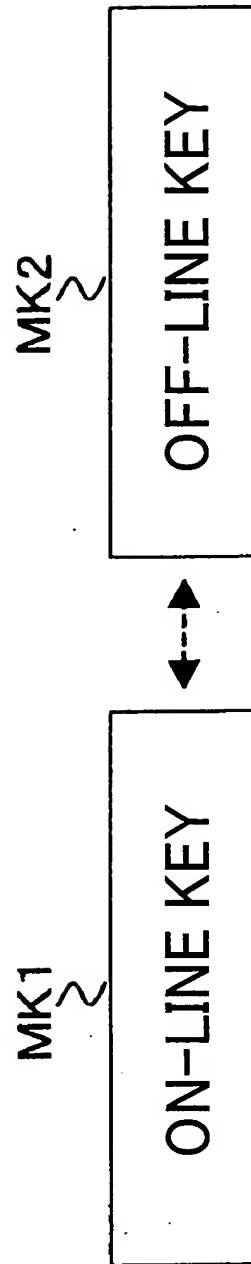


FIG. 21

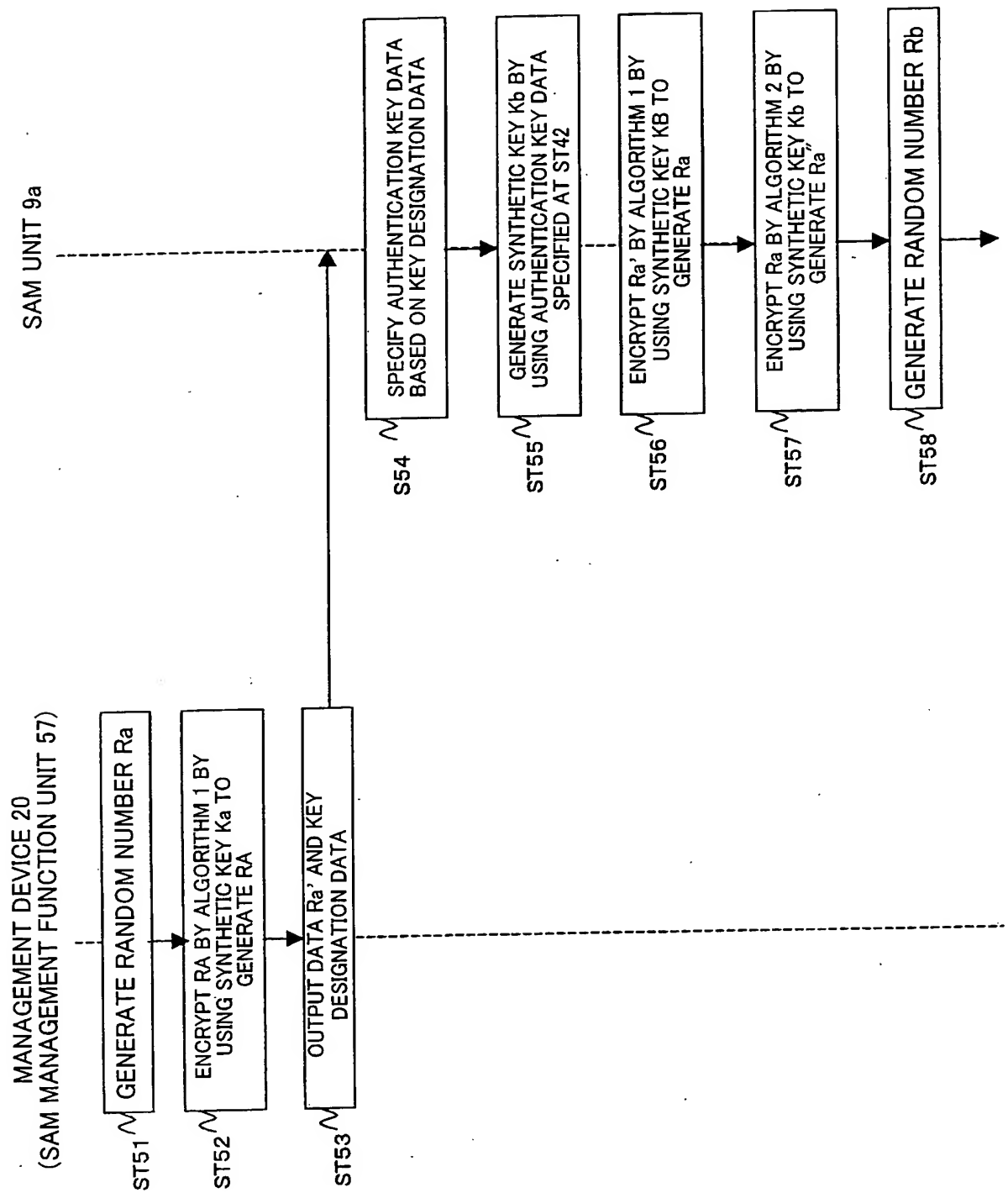


FIG. 22

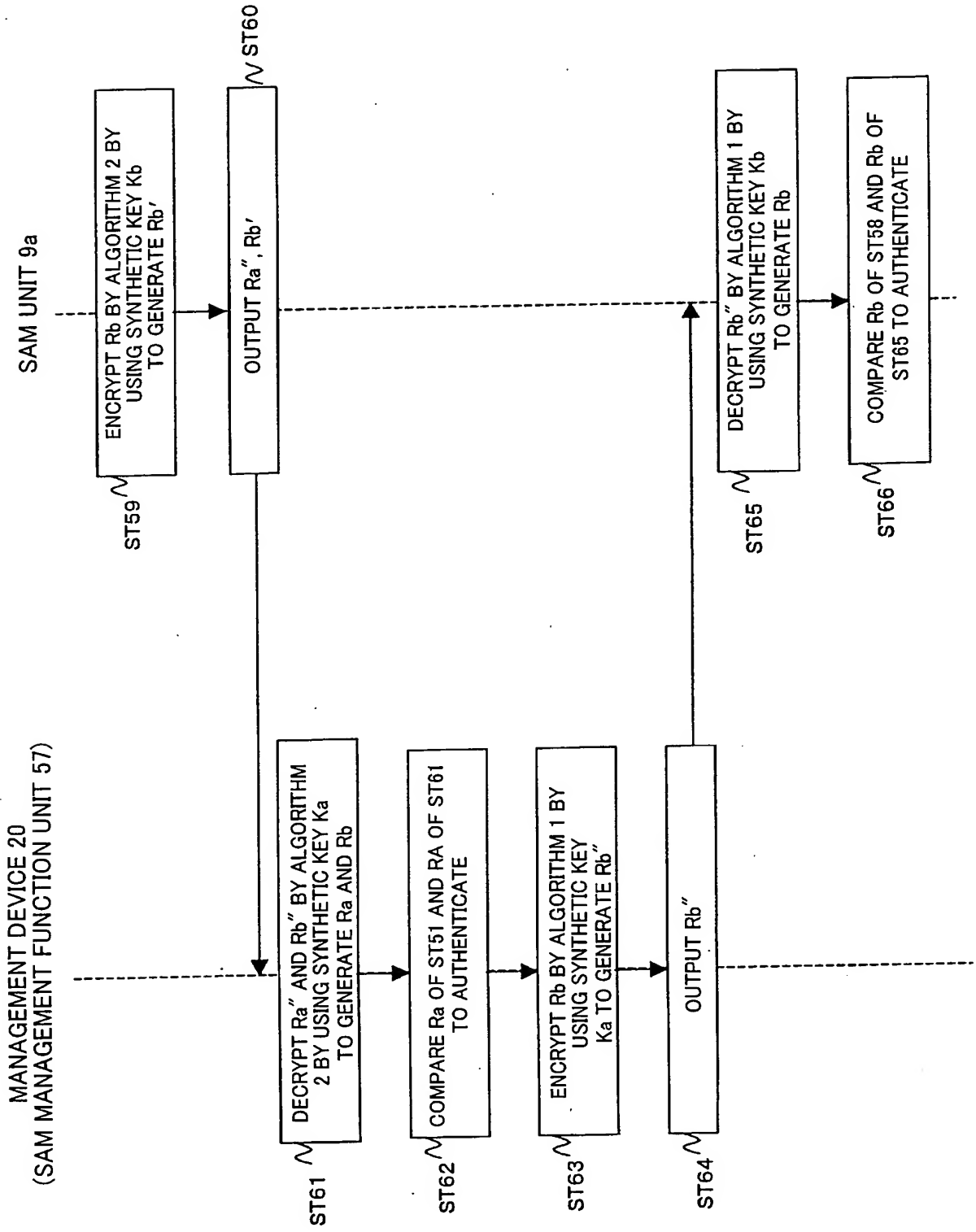


FIG. 23

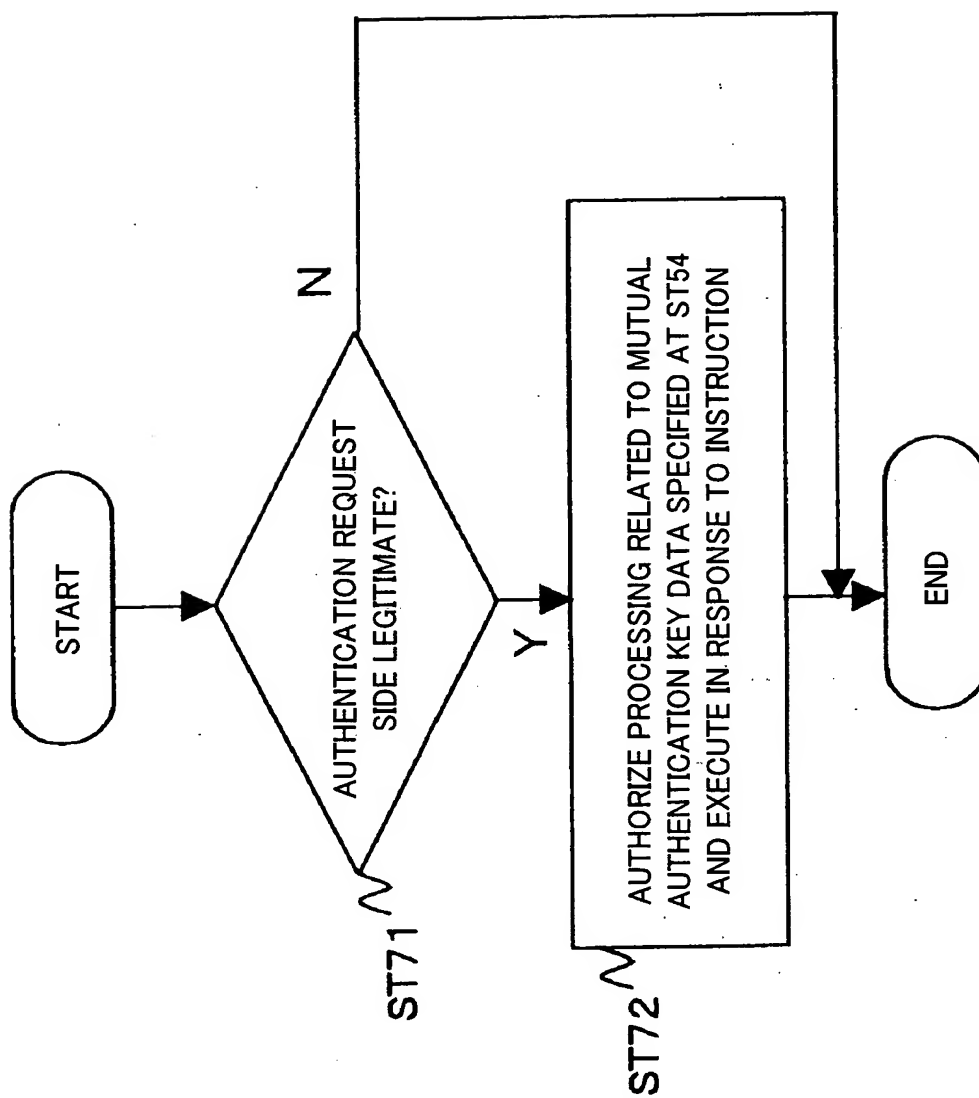
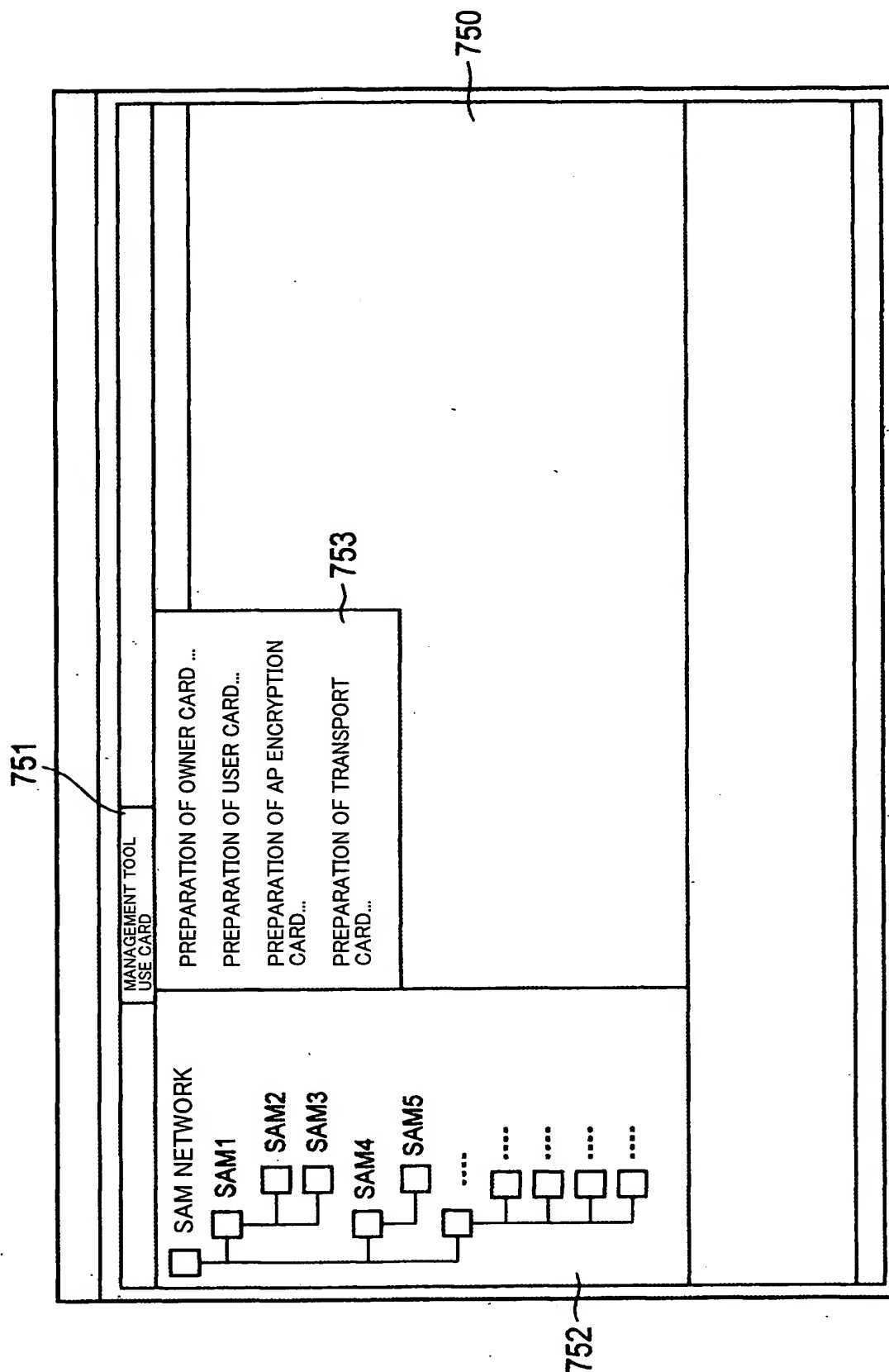


FIG. 24



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FIG. 26

PREPARE ○○○○ CARD

PLEASE SET ○○○○ CARD IN READER/WRITER

PREPARE CANCEL

770

771

FIG. 27

PREPARATION OF USER CARD

SELECTION OF USED SERVICE

<input type="checkbox"/>	HARDWARE MANAGEMENT SERVICE	KEY VERSION :	<input type="text" value="0x0001"/>
<input checked="" type="checkbox"/>	COMMUNICATION MANAGEMENT SERVICE	KEY VERSION :	<input type="text" value="0x0001"/>
<input checked="" type="checkbox"/>	MUTUAL AUTHENTICATION SERVICE	KEY VERSION :	<input type="text" value="0x0001"/>
<input checked="" type="checkbox"/>	AP RESOURCE AREA MANAGEMENT SERVICE	KEY VERSION :	<input type="text" value="0x0001"/>
<input type="checkbox"/>	LOG RECORDING SERVICE	KEY VERSION :	<input type="text" value="0x0001"/>
<input type="checkbox"/>	NEGATIVE LIST SERVICE	KEY VERSION :	<input type="text" value="0x0001"/>

SERVICE AP MEMORY AREA

<input type="checkbox"/>	READING	KEY VERSION :	<input type="text" value="0x0001"/>
<input type="checkbox"/>	WRITING	KEY VERSION :	<input type="text" value="0x0001"/>
<input checked="" type="checkbox"/>	PACKAGE	KEY VERSION :	<input type="text" value="0x0001"/>

SYSTEM AP MEMORY AREA

<input checked="" type="checkbox"/>	READING	KEY VERSION :	<input type="text" value="0x0001"/>
<input checked="" type="checkbox"/>	WRITING	KEY VERSION :	<input type="text" value="0x0001"/>
<input checked="" type="checkbox"/>	PACKAGE	KEY VERSION :	<input type="text" value="0x0001"/>

DEVICE/TERMINATION KEY

<input checked="" type="checkbox"/>	DEVICE KEY	KEY VERSION :	<input type="text" value="0x0001"/>
<input checked="" type="checkbox"/>	TERMINATION KEY	KEY VERSION :	<input type="text" value="0x0001"/>

OK CANCEL

FIG. 28

PREPARATION OF AP RESOURCE ENCRYPTION CARD

SELECTION OF USED SERVICE

<input checked="" type="checkbox"/> HARDWARE MANAGEMENT SERVICE	KEY VERSION:	<input type="text" value="0x0001"/>
<input checked="" type="checkbox"/> COMMUNICATION MANAGEMENT SERVICE	KEY VERSION:	<input type="text" value="0x0001"/>
<input checked="" type="checkbox"/> MUTUAL AUTHENTICATION SERVICE	KEY VERSION:	<input type="text" value="0x0001"/>
<input checked="" type="checkbox"/> AP RESOURCE AREA MANAGEMENT SERVICE	KEY VERSION:	<input type="text" value="0x0001"/>
<input checked="" type="checkbox"/> LOG RECORDING SERVICE	KEY VERSION:	<input type="text" value="0x0001"/>
<input checked="" type="checkbox"/> NEGATIVE LIST SERVICE	KEY VERSION:	<input type="text" value="0x0001"/>

SERVICE AP MEMORY AREA

<input checked="" type="checkbox"/> READING	KEY VERSION:	<input type="text" value="0x0001"/>
<input checked="" type="checkbox"/> WRITING	KEY VERSION:	<input type="text" value="0x0001"/>
<input checked="" type="checkbox"/> PACKAGE	KEY VERSION:	<input type="text" value="0x0001"/>

SYSTEM AP MEMORY AREA

<input checked="" type="checkbox"/> READING	KEY VERSION:	<input type="text" value=""/>
<input checked="" type="checkbox"/> WRITING	KEY VERSION:	<input type="text" value=""/>
<input checked="" type="checkbox"/> PACKAGE	KEY VERSION:	<input type="text" value=""/>

DEVICE/TERMINATION KEY

<input checked="" type="checkbox"/> DEVICE KEY	KEY VERSION:	<input type="text" value=""/>
<input checked="" type="checkbox"/> TERMINATION KEY	KEY VERSION:	<input type="text" value=""/>

OK CANCEL

FIG. 29

PREPARATION OF TRANSPORT CARD

NEXT AP RESOURCE ELEMENT IS READ OUT 800

SAM IP ADDRESS: . . .

AP MEMORY AREA: SERVICE MEMORY AREA ▼

ELEMENT TYPE : IC DIVISION KEY ▼

INSTANCE NUMBER : 0000h ▼

VERSION : 0000h ▼

OK CANCEL

FIG. 30

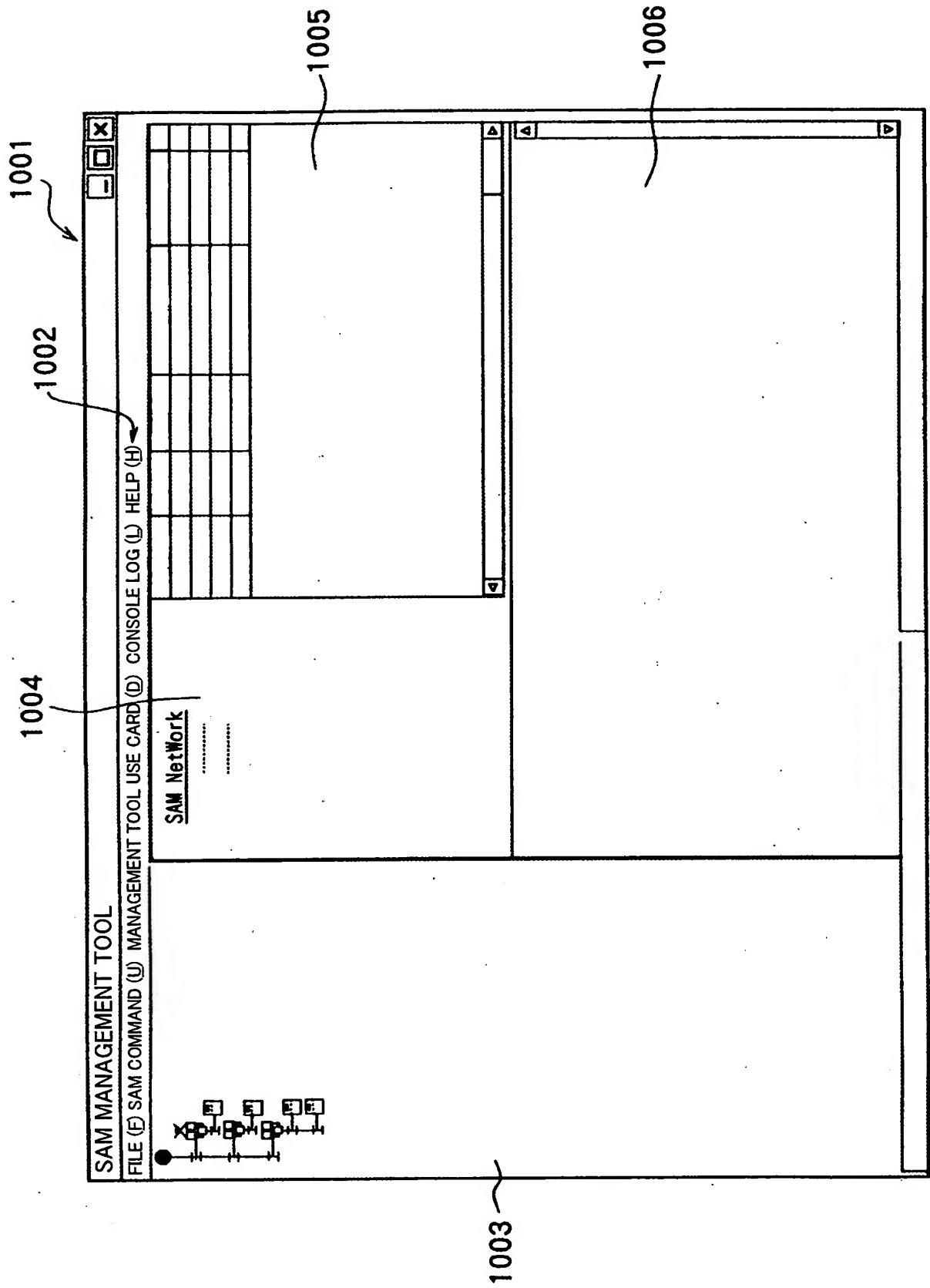


FIG. 31

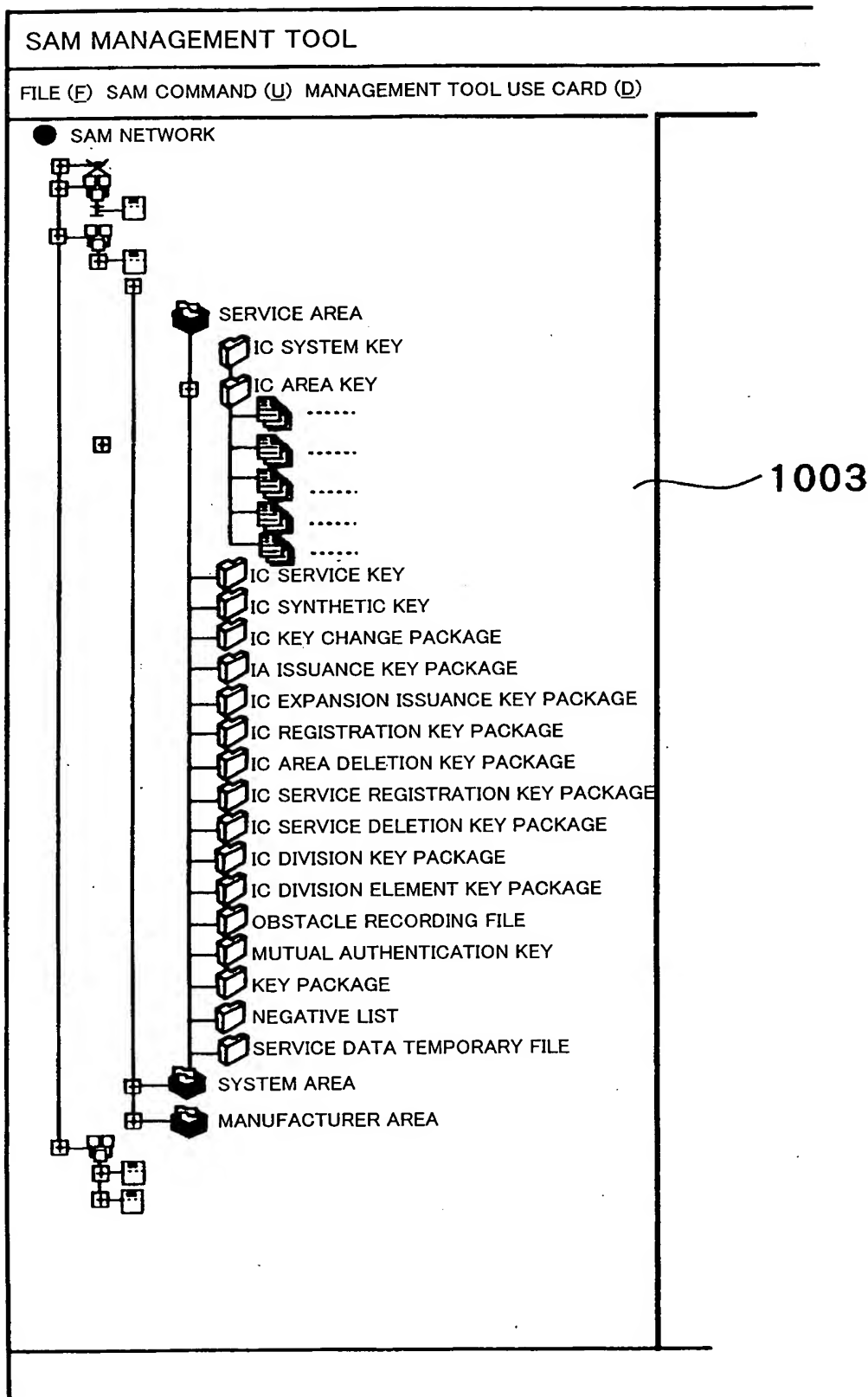


FIG. 32

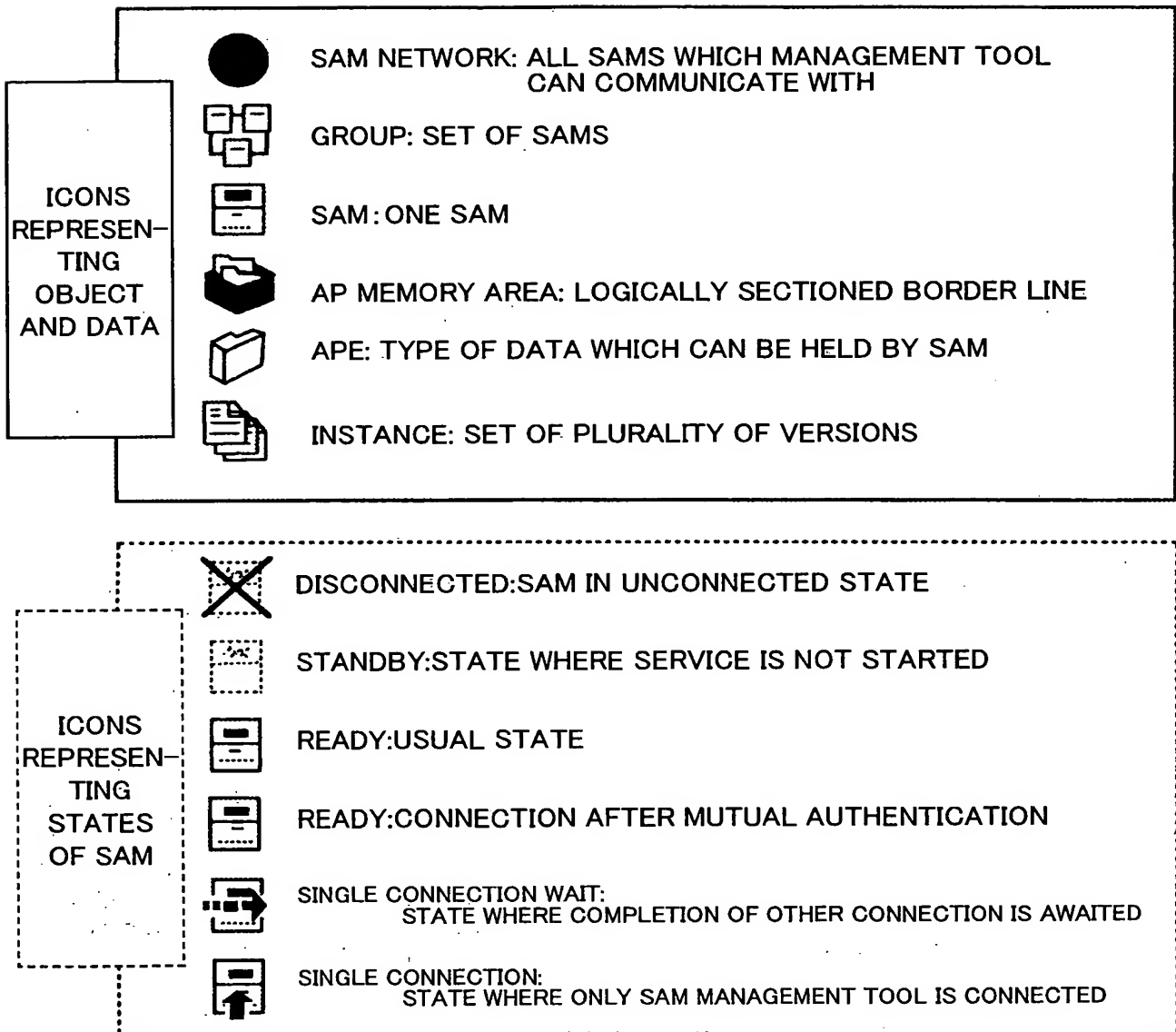


FIG. 33

CONSOLE LOG (L) HELP (H)

SAM NETWORK

IP ADDRESS	PORT	TYPE	STATE	SAM NAME	COMMENT
.....	.....	SAM			
		GROUP			
		GROUP			
		GROUP			

1010



FIG. 34

CONSOLE LOG (L) HELP (H)

GROUP

IP ADDRESS	PORT	TYPE	STATE	SAM NAME	COMMENT
.....	.....	SAM	READY		

1020

FIG. 35

CONSOLE LOG (L) HELP (H)

	MEMORY AREA	TYPE	PURPOSE
READY MODE	.....	AP MEMORY AREA	SERVICE AREA
	.....	AP MEMORY AREA	SYSTEM AREA
	.....	AP MEMORY AREA	MANUFACTURER AREA

1030

FIG. 36

AP RESOURCE PARTITION		APE TYPE	
SERVICE AREA		APE TYPE NUMBER	
		SYSTEM KEY	
		IC AREA KEY	
		IC SERVICE KEY	
		IC SYNTHETIC KEY	
		IC KEY CHANGE PACKAGE	
		IC ISSUANCE KEY PACKAGE	
		IC EXPANSION ISSUANCE KEY PACKAGE	
		IC REGISTRATION KEY PACKAGE	
		IC AREA DELETION KEY PACKAGE	
		IC SERVICE REGISTRATION KEY PACKAGE	
		IC SERVICE DELETION KEY PACKAGE	
		IC DIVISION KEY PACKAGE	
		IC DIVISION ELEMENT KEY PACKAGE	
		OBSTACLE RECORDING FILE	
		MUTUAL AUTHENTICATION KEY	
		KEY PACKAGE	
		NEGATIVE LIST	
		SERVICE DATA TEMPORARY FILE	

1040

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FILE (F) SAM COMMAND (U) MANAGEMENT TOOL USE CARD (D) CONSOLE LOG (L) HELP (H)

SAM MANAGEMENT TOOL

ELEMENT TYPE	INSTANCE NUMBER	SYSTEM CODE	AREA / SERVICE CODE	MAXIMUM VER NUMBER	USED VER NUMBER	MINIMUM VER	MAXIMUM VER	AUTOMATIC GENERATION	ELEMENT ACQUISITION	DELETE
READY MODE SERVICE AREA IC SERVICE KEY	0000000000	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE
	0000000001	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE
	0000000002	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE
	0000000003	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE
	0000000004	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE
	0000000005	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE
	0000000006	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE
	0000000007	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE
	0000000008	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE
	0000000009	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE
	0000000010	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE
	0000000011	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE
	0000000012	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE
	0000000013	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE
	0000000014	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE
	0000000015	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE
0000000016	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE	
0000000017	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE	
0000000018	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE	
0000000019	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE	
0000000020	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE	
0000000021	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE	
0000000022	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE	
0000000023	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE	
0000000024	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE	
0000000025	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE	
0000000026	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE	
0000000027	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE	
0000000028	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE	
0000000029	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE	
0000000030	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE	
0000000031	000000	00000000000000	0000	000	0000000000	00000000	NONE	ABLE	ABLE	
0000000032	000000	00000000000000	000							

FIG. 38

```

.....
SAM-EVT-33
....., .jp
READY MODE
SERVICE AREA
IC SERVICE KEY
INSTANCE NUMBER.....
MAXIMUM VER NUMBER
USED VER
MINIMUM VER NUMBER
MAXIMUM VER NUMBER
TAG.....
AUTOMATIC GENERATION: NONE
ELEMENT ACQUISITION: ABLE
DELETE: ABLE
SYSTEM CODE.....
SERVICE CODE.....
CURRENT AREA CODE.....

```

FIG. 39

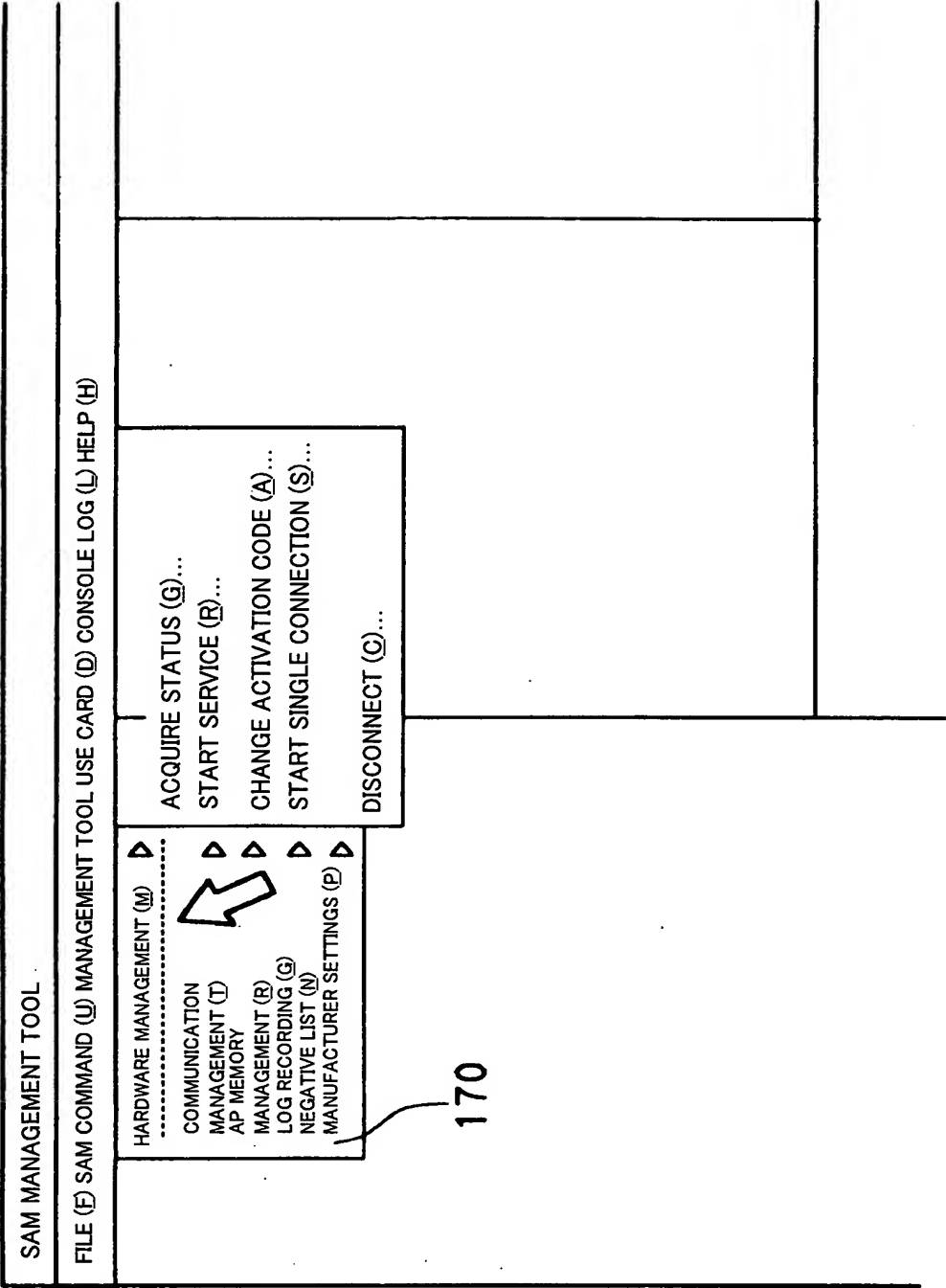


FIG. 40

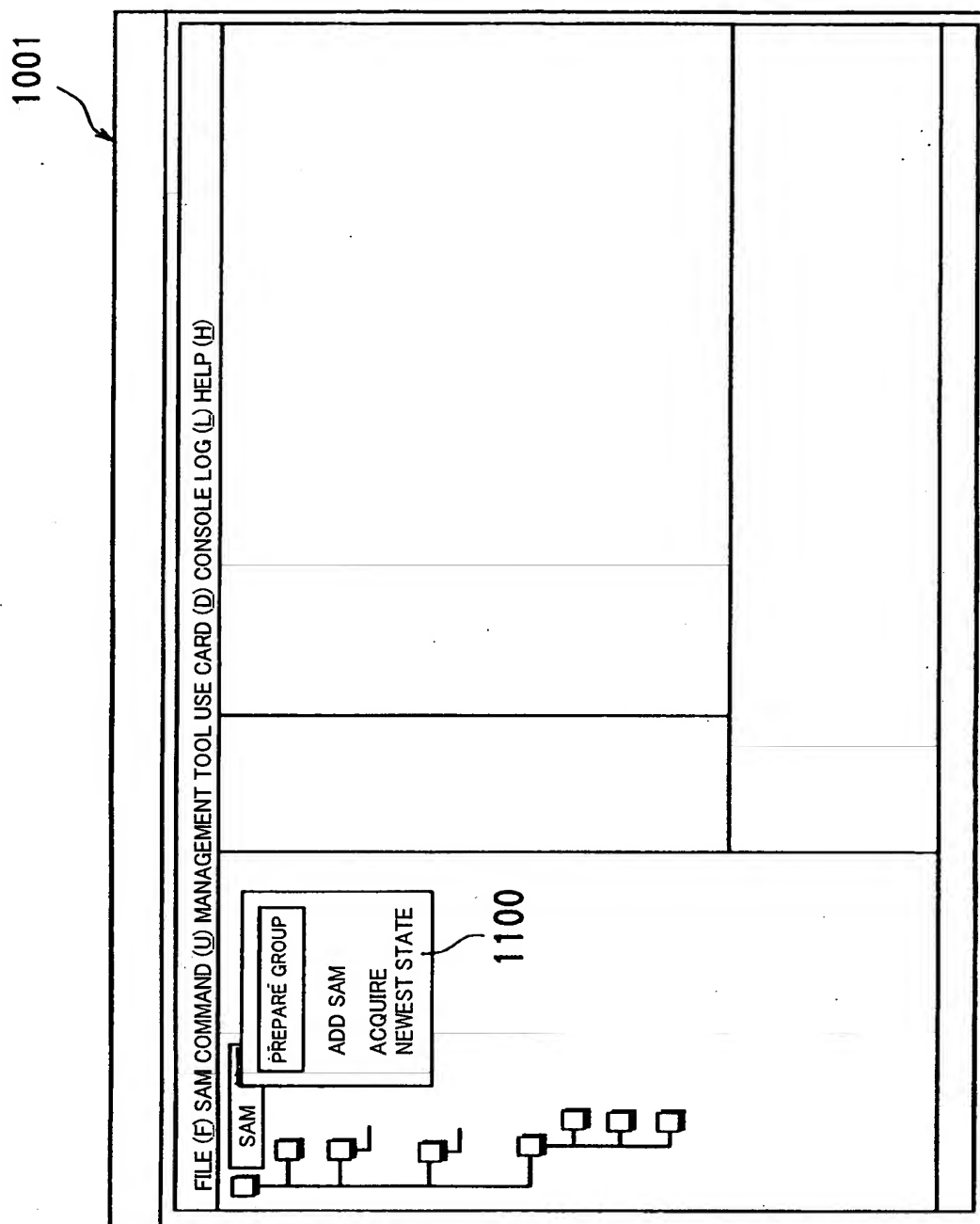


FIG. 41

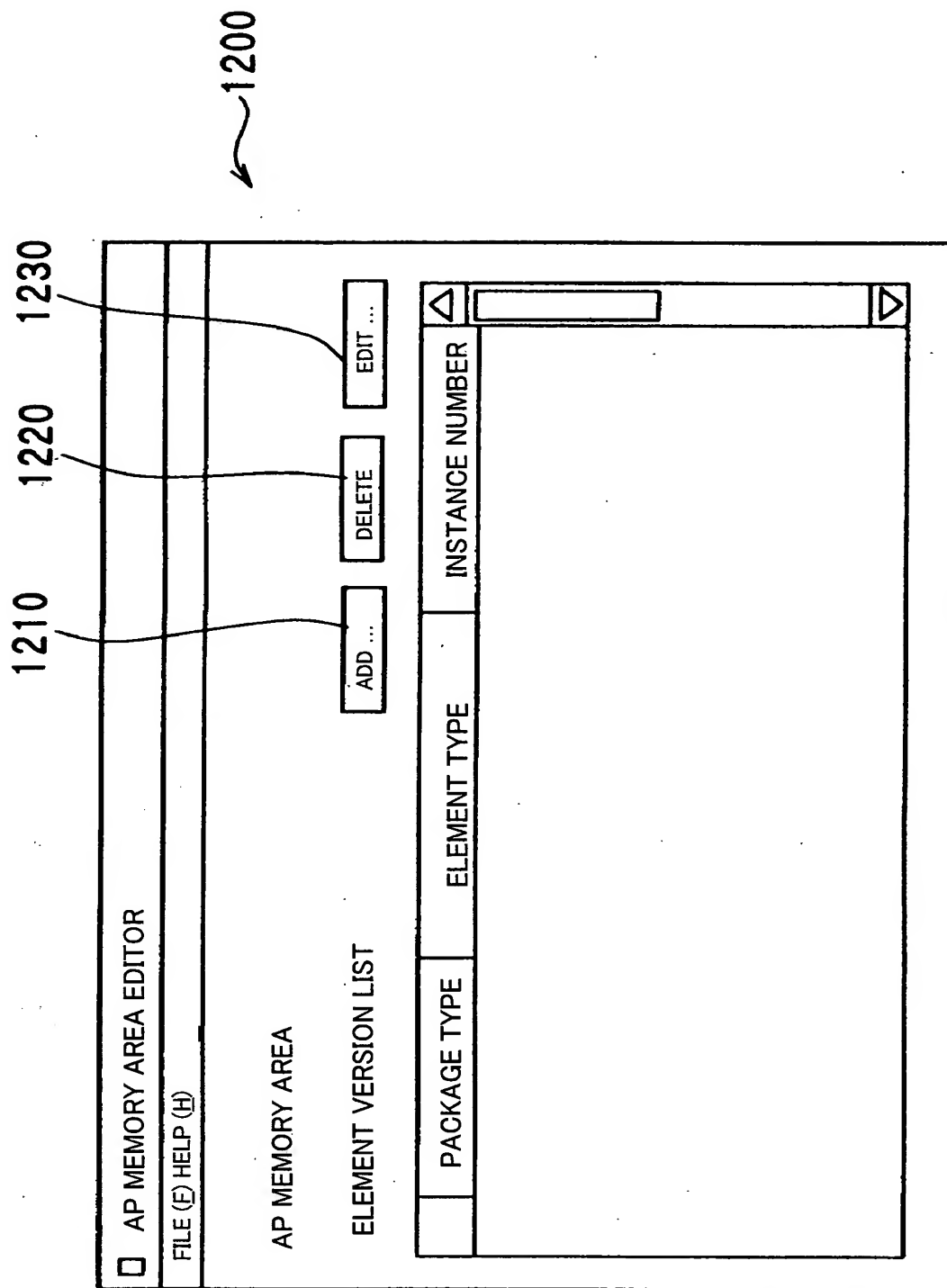




FIG. 42

ADDITION OF ELEMENT PACKAGE

ELEMENT PACKAGE TYPE

☒ PREPARE ELEMENT

☐ ADD PACKAGE

APE TYPE :

IC SYSTEM KEY

1302

INSTANCE NUMBER :

1303

FILE ...

OK

CANCEL

1304

1300

FIG. 43

**APE PREPARATION**

ELEMENT TYPE: IC SYSTEM KEY    INSTANCE NUMBER : .....

TAG: ..... 1401

NUMBER OF : 20 1402  
USED VERSIONS

ACQUIRE ELEMENT : POSSIBLE 1403

ATTRIBUTE INFORMATION

AUTOMATICALLY : POSSIBLE 1404  
GENERATE DATA

DELETE ELEMENT : POSSIBLE 1405

SEE CARD...

NAME OF ATTRIBUTE INFORMATION	VALUE
SYSTEM CODE	

EDIT ATTRIBUTES ... 1406

STORE    CANCEL

FIG. 44

1500

ADDITION OF APE VERSION

ELEMENT TYPE: IC KEY CHANGE PACKAGE      INSTANCE NUMBER :.....

ELEMENT VERSION : 

1501

 KEY DATA INPUT METHOD: 

MANUAL

ELEMENT DATA

SEE CARD...

ITEM NAME	VALUE
IC KEY CHANGE PACKAGE	XXX...

1503

EDIT ATTRIBUTES...

STORE

CANCEL

FIG. 45

AP MEMORY AREA EDITOR

FILE (F) HELP (H)

AP MEMORY AREA : SERVICE AREA

ELEMENT PACKAGE LIST

ADD ...

DELETE

EDIT ...

	PACKAGE TYPE	ELEMENT TYPE	INSTANCE NUMBER
1	PREPARE ELEMENT	IC SERVICE KEY	.....
2	ADD VERSION	IC SERVICE KEY	.....
3	PREPARE ELEMENT	IC SERVICE KEY	.....
4	ADD VERSION	IC SERVICE KEY	.....

1240

120

## LIST OF REFERENCES

- 1... communication system
- 2... server apparatus
- 3... IC card
- 4... card RW
- 6... PC
- 7... external memory
- 8... SAM module
- 9a, 9b... SAM units
- 19a, 19b... ASP server apparatus
- 20... management device
- 51... AP edit tool
- 52... management tool
- 53... card reader/writer
- 54... display
- 55... I/F, 56... operating unit
- 57... SAM management function portion
- 58... card management function portion
- 61... memory I/F
- 62... external I/F
- 63... memory
- 64... authentication unit
- 65... CPU
- 71... default card
- 72... owner card
- 73... user card
- 74... transport card
- 75... AP encryption card